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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,878	01/17/2002	Shijian Zhou	GP-300898	5565
7590	05/25/2004		EXAMINER	
CHRISTOPHER DEVRIES			NGUYEN, HANH N	
General Motors Corporation				
Legal Staff, Mail Code 482-C23-B21			ART UNIT	PAPER NUMBER
P.O. Box 300			2834	
Detroit, MI 48265-3000			DATE MAILED: 05/25/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/047,878	ZHOU ET AL.	
	Examiner	Art Unit	
	Nguyen N Hanh	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 29 March 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-12 and 14-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-12 and 14-18 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 17 January 2002 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Jarczynski.

Regarding claim 1, Jarczynski shows an electric motor comprising: a stator (14 in Fig. 1) for producing a magnetic field; a rotor (10) rotated by said magnetic field; a motor shaft (16) coupled to said rotor; and a first set of passageways (50 in Fig. 1 and Fig. 4) through said rotor to conduct a nongaseous liquid coolant (abstract).

Regarding claim 2, Jarczynski also discloses an electric motor wherein said stator includes current-carrying coils (Fig. 3B) to generate said magnetic field.

Regarding claims 3, Jarczynski also discloses an electric motor wherein said rotor is a squirrel cage rotor.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarczynski.

Regarding claims 4, Jarczynski discloses the invention except showing the rotor includes permanent magnet. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make rotor with permanent magnet, since the Examiner takes Official Notice of the equivalence of permanent magnet and electromagnet for their use in the construction of an electric motor and the selection of any of these known equivalents would be within the level of ordinary skill in the Art.

Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Ehrhart et al. and further in view of Yamamoto.

3. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarczynski in view of Yamamoto.

Regarding claim 5, Jarczynski shows all limitations of the claimed invention except showing the electric motor wherein the motor shaft includes an interior surface that is cone shaped to conduct a liquid coolant through said interior surface to cool the electric motor.

However, Yamamoto discloses the electric motor wherein said motor shaft includes an interior surface that is cone shaped to conduct a liquid coolant through said interior surface to cool the electric motor for the purpose of improving the cooling of the motor.

Since Jarczynski and Yamamoto are in the same field of endeavor, the purpose disclosed by Yamamoto would have been recognized in the pertinent art of Jarczynski.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Jarczynski by using shaft includes an interior surface that is cone shaped to conduct a liquid coolant through said interior surface to cool the electric motor as taught by Yamamoto for the purpose of improving the cooling of the motor.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarczynski in view of Darby et al.

Regarding claim 6, Jarczynski shows all limitations of the claimed invention except showing a rotor wherein said first set of passageways has entrance openings and exit openings, said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings oriented about said motor shaft center line at a second diameter, and said first diameter being less than said second diameter

However, Darby et al. disclose the electric motor with a set of passageways (80 in Fig. 2 and 3) has entrance openings and exit openings, said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings oriented about said motor shaft center line at a second diameter, and said first diameter being less than said second diameter (Fig. 3) for the purpose of forming centrifugal pressure (Col. 6, lines 53-57).

Since Jarczynski and Darby et al. are in the same field of endeavor, the purpose disclosed by Darby would have been recognized in the pertinent art of Jarczynski.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Jarczynski by forming a rotor wherein said

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first set of passageways has entrance openings and exit openings, said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings oriented about said motor shaft center line at a second diameter, and said first diameter being less than said second diameter as taught by Darby et al. for the purpose of forming centrifugal pressure.

5. Claims 7,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jarczynski in view of in view of Grennan et al.

Regarding claim 7, Jarczynski shows all limitations of the claimed invention except showing the electric motor further including a second set of passageways between said rotor and said motor shaft.

However, Grennan et al. disclose the electric motor further including a second set of passageways between said rotor (20 in Fig. 1) and said motor shaft (32 in Fig. 1 and Col. 4, lines 1-35) for the purpose of cooling off the motor.

Since Jarczynski and Greenan et al. are in the same field of endeavor, the purpose disclosed by Grennan et al. would have been recognized in the pertinent art of Jarczynski.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Jarczynski by using a set of passageways between said rotor and said motor shaft as taught by Grennan et al. for the purpose of cooling off the motor.

Regarding claim 8, the structure disclosed Jarczynski modified by Grennan et al. would have second set of passageways have entrance openings and exit openings,

said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings oriented about said motor shaft center line at a second diameter, and said first diameter being less than said second diameter (because of the conical shape of the shaft).

6. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of Jarczynski.

Regarding claim 9, Yamamoto also discloses an electric motor comprising: a wound stator (10 in Fig. 1), said wound stator conducting current to generate a magnetic field; a rotor (6) rotated by said magnetic field; a motor shaft (7) coupled to said rotor, said motor shaft including a cone-shaped interior surface having an entrance opening (4) and an exit opening (9a and 9b); and a liquid coolant propelled by centrifugal force generated by the rotation of said rotor through said cone-shaped interior surface, said liquid coolant cooling the electric motor (abstract). Yamamoto fails to show a first set of passageways through said rotor to conduct said liquid coolant through said rotor.

However, Jarczynski discloses a set of passageways through the rotor using liquid coolant for the purpose of cooling off the motor.

Since Yamamoto and Jarczynski are in the same field of endeavor, the purpose disclosed by Jarczynski would have been recognized in the pertinent art of Yamamoto.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Yamamoto by using a first set of

passageways through said rotor to conduct said liquid coolant through said rotor as taught by Jarczynski for the purpose of cooling off the motor.

Regarding claim 10, Yamamoto also discloses an electric motor wherein said rotor is a squirrel cage rotor.

Regarding claim 11, Yamamoto also shows the rotor includes permanent magnets (Fig. 1)

Regarding claim 12, Yamamoto also discloses an electric motor wherein said liquid coolant is oil (abstract).

7. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of Jarczynski and further in view Grennan et al.

Regarding claim 15, Yamamoto and Jarczynski show all limitations of the claimed invention except showing the electric motor further including a second set of passageways between said rotor and said motor shaft.

However, Grennan et al. disclose the electric motor further including a second set of passageways between said rotor (20 in Fig. 1) and said motor shaft (32 in Fig. 1 and Col. 4, lines 1-35) for the purpose of cooling off the motor.

Since Yamamoto, Jarczynski and Greenan et al. are in the same field of endeavor, the purpose disclosed by Grennan et al. would have been recognized in the pertinent art of Yamamoto and Jarczynski.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Yamamoto and Jarczynski by using a set of

passageways between said rotor and said motor shaft as taught by Grennan et al. for the purpose of cooling off the motor.

Regarding claim 16, the structure disclosed by Yamamoto and Jarczynski, modified by Grennan et al. would have second set of passageways have entrance openings and exit openings, said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings oriented about said motor shaft center line at a second diameter, and said first diameter being less than said second diameter (because of the conical shape of the shaft).

8. Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of Jarczynski and further in view of Darby et al.

Regarding claim 14, Yamamoto and Jarczynski show all limitations of the claimed invention except showing a rotor wherein said first set of passageways has entrance openings and exit openings, said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings oriented about said motor shaft center line at a second diameter, and said first diameter being less than said second diameter

However, Darby et al. disclose the electric motor with a set of passageways (80 in Fig. 2 and 3) has entrance openings and exit openings, said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings oriented about said motor shaft center line at a second diameter, and said first diameter being less than said second diameter for the purpose of forming centrifugal pressure.

Since Yamamoto, Jarczynski and Darby et al. are in the same field of endeavor, the purpose disclosed by Darby would have been recognized in the pertinent art of Yamamoto and Jarczynski.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Yamamoto and Jarczynski by forming a rotor wherein said first set of passageways has entrance openings and exit openings, said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings oriented about said motor shaft center line at a second diameter, and said first diameter being less than said second diameter as taught by Darby et al. for the purpose of forming centrifugal pressure.

Regarding claim 17, it is noted that all limitations of the method claim have been fulfilled by Yamamoto, Jarczynski and Darby as in claims 9 and 14.

Conclusion

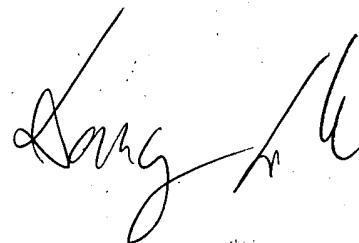
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberge, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

May 18, 2004



DANGLE
PRIMARY EXAMINER